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09/875,329	06/05/2001	Steven A. Morley	010327	7520

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QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
RAO, ANAND SHASHIKANT	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/875,329	MORLEY ET AL.	
	Examiner	Art Unit	
	Andy S. Rao	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *9/12/06*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-5,7-10,12-15,22-25,27-31 and 33-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-5,7-10,12-15,22-25,27-31 and 33-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/12/06 has been entered.

Response to Arguments

2. Applicant's arguments filed with respect to claims 2-5, 7-10, 12-15, 17-20, 22-25, 27-31, and 33-35 as filed in 9/12/06 have been fully considered but they are not persuasive.

3. Claims 2-5, 7-10, 12-15, 17-20, 22-25, 27-31, and 33-35 are under 35 U.S.C. 103(a) as being unpatentable over Kim et al., (hereinafter referred to as "Kim") in view of Thyagarajan et al., (hereinafter referred to as "Thyagarajan") and Donovan, as was set forth in the Office Action of 4/12/06.

4. The Applicant presents four arguments contending the Examiner's rejection of claims 2-5, 7-10, 12-15, 17-20, 22-25, 27-31, and 33-35 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al., (hereinafter referred to as "Kim") in view of Thyagarajan et al., (hereinafter referred to as "Thyagarajan") and Donovan, as was set forth in the Office Action of 4/12/06. However after a careful consideration of the arguments presented, the Examiner must respectfully disagree for the reasons that follow, and maintains the grounds of rejection.

After summarizing the prosecution of the case and establishing the legal basis for the arguments (Amendment of 9/12/06: page 9, lines 7-23; page 10, lines 1-), the Applicants argue that the Examiner has failed to provide a motivation, but only provides a "conclusory statement" related to obviousness, said statement lacking any basis from the teachings of the references (Amendment of 9/12/06: page 10, lines 6-18). The Examiner strongly disagrees. It is noted that the motivation of this combination is clearly stipulated as "...order to preserve features of blocks by preventing the blocking effect..." (Final Office Action of 4/11/06: page 4, lines 13-14), and further notes that Thyagarajan clearly discusses this stratagem as the reason for using selective block sizes (Thyagarajan: column 4, lines 20-40). Upon reading this, one of ordinary skill in the art would clearly find this sufficient motivation to incorporate this teaching with Kim, which is also concerned with blocking artifacts (Kim: column 6, lines 40-50). Given this attempt both references to address a common problem, one of ordinary skill in the art would clearly Thyagarajan relevant to the teachings of Kim, and thus find any advantageous teaching of Thyagarajan sufficient motivation to make a reasonable combination with Kim. Accordingly, the Examiner maintains that the combination is proper, and that a legally sufficient case for *prima facie* obviousness has been established and maintained throughout all stages of the prosecution.

Secondly, the Applicant asserts that the Examiner's interpretation of the secondary Thyagarajan reference is incorrect because the block assignment is a decomposition step is neither analogous nor equivalent the claimed selective decomposition step (Amendment of 9/12/06: page 10, lines 19-31; page 11, lines 1-3). The Examiner cannot disagree more. Firstly, the Applicant has already admitted that these are both decomposition steps, and the citations disclose that various block sizes can be used (Thyagarajan: column 5, lines 35-52), and the

predetermined criteria is a ***pixel based variance*** calculation (Thyagarajan: column 5, lines 55-67), with said block assignment being implemented to preserve the already discussed motivation of preserving block features (Thyagarajan: column 4, lines 20-45). Accordingly, since block assignment is done on a pixel based criterion, decimation would also occur prior to the frequency domain transformation. Accordingly, the Examiner maintains that the application of Thyagarajan is not based on an incorrect interpretation, and that the reference's disclosed Thyagarajan decomposition step is a selective decomposition step as in the instant invention.

Furthermore, even if "...decimation were done in the frequency domain..." were sufficiently claimed in the independent claims, which it is not (Claim 8: line 4, lines 1-2: "plurality of pixels"), contrary to the Applicant's argument (Amendment of 9/12/06: page 11, lines 3-6), this would still not overcome the combination references. Firstly, Kim's loop filter operative in the DCT domain could implement the "selective decimation" since it can used for down-conversion (Kim: column 6, lines 40-45). And secondly, such an alleged distinction represents nothing more than a mere shift in the location or application of a step, which has been legally established as being unpatentable as being obvious, *In re Japiske, 86 USPQ 70 (CCPA 1950).* Accordingly, the Examiner maintains that were the scope of all pending claims amended to reflect "...decimation in the frequency domain...", this would still not overcome the rejection of record.

Lastly, the Applicant's argue that since Donovan discloses filtering on a line-by-line basis, that this fails to read block by block filtering of the claimed invention (Amendment of 9/12/06: page 11, lines 8-26; page 12, lines 1-7). The Examiner respectfully disagrees. Firstly, it is noted that the filtering is applied to multiple lines at the same time (Donovan: column 5, lines

23-45), and pair of lines with the horizontal application of the coefficients (Donovan: column 9, lines 57-63), and thus would be applicable to a multi-line configuration such as a block. Accordingly, the Examiner maintains that since Donovan teaches filtering on a multiple line basis, it is does not teach away from primary and secondary references. Furthermore, since m and n are never defined as being anywhere in the claims as being greater than zero, a line-by-line application still reads on the claims. The blocks are never stipulated in terms of dimension, either with m and n being equal to each other leading to uniform block sizes, or with m or n being different from each other leading to non-uniform block based partitions. A line reads on the latter case where, each line would be a row (n=1) and the columns being equal in number to the number of pixels in each row. Since a line can be represented in a row-column nomenclature, it reads on the broadly claimed blocks of the instant invention. However, even if the claims were amended to establish dimensions of the blocks to overcome the line application this would still not overcome the application of the Donovan reference as the extension of line-based filtering to a block based application represents nothing more than an obvious duplication of parts to produce a multiplied effect which has already been legal established as being unpatentable, *St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977).* Accordingly, the Examiner maintains that Donovan sufficiently addresses the broadly claimed block based filtering.

The Applicants present no further arguments in support of the dependent claims (Amendment of 9/12/06: page 12, lines 6-24), and thus those claims are rejected for the reasons discussed above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-5, 7-10, 12-15, 17-20, 22-25, 27-31, 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al., (hereinafter referred to as "Kim") in view of Thyagarajan et al., (hereinafter referred to as "Thyagarajan") and Donovan.

Regarding independent claim 8, Kim discloses a method of decimation of a digital image, the digital image represented by a plurality of pixels (Kim: figure 3B), the method comprising: dividing the digital image into a plurality of blocks (Kim: column 6, lines 32-65), wherein each block may be represented as a plurality of elements within a plurality of columns and rows, decimating further comprising: filtering each element of each column of the block (Kim: column 12, lines 10-60); and decimating the blocks (Kim: column 12, lines 60-67; column 13, lines 1-10), as in claim 8. However, Kim fails to disclose filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%; and decimating, selectively, certain ones of the blocks based upon predetermined criteria. Thyagarajan discloses the selective decimation of each element of each column of the block of the digital images based on predetermined criteria (Thyagarajan: column 5, lines 35-67; column 6, lines 1-50) in order to preserve features of blocks by preventing the blocking effect (Thyagarajan: column 4, lines 20-30), as in the claim. Accordingly, given the Thyagarajan teaching, it would have been obvious for one of ordinary skill in the art to incorporate Thyagarajan's teaching of selective decimation based on predetermined criteria, into

the Kim decimation method in order to prevent blocking artifacts and thus preserve features of blocks. The Kim method, now incorporating Thyagarajan's teaching of selectively decimating blocks based on predetermined criteria, has a majority of the features of claim 8, but fails to disclose having filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%, as in the claim. Donovan discloses that a filter weighting of current columns of blocks where the 25%-50%-25% configuration is known (Donovan: column 9, lines 30-65: mode of ¼, ½, ¼) in order to allow for scaling (decimation) between different scan line formats (Donovan: column 8, lines 15-32). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Donovan teaching of weighing coefficients of ¼, ½, ¼ for a current column of pixels into the Kim-Thyagarajan method, in order to allow the composite method to scale between different scan line formats. The Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation has all of the features of claim 8.

Regarding claim 2, the Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the predetermined criteria is a function of chrominance information of the block (Thyagarajan: column 6, lines 50-55), as in the claim.

Regarding claim 3, the Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the predetermined criteria being is a function of contrast of the block (Thyagarajan: column 7, lines 1-15), as in the claim.

Regarding claim 4, the Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the predetermined criteria being a function of a level of detail in the block (Thyagarajan: column 7, lines 1-15), as in the claim.

Regarding claim 5, the Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the predetermined criteria being a function of a desired bit rate (Thyagarajan: column 13, lines 55-68), as in the claim.

Regarding claim 7, the Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has separating the image into luminance and two chrominance signals (Kim: column 3, lines 35-40), as in the claim.

Regarding claim 9, the Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has filtering the elements of the plurality blocks along the rows (Donovan: column 9, lines 30-65: mode of 1/4/,1/2,1/4), as in the claim.

Regarding claims 10, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has pixel to frequency and frequency to pixel conversion (Kim: column 3, lines 25-50), as in the claim.

Regarding claim 12, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the

predetermined criteria is a function of chrominance information of the block (Thyagarajan: column 6, lines 50-55), as in the claim.

Regarding claim 13, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the predetermined criteria being a function of contrast of the block (Thyagarajan: column 7, lines 1-15), as in the claim.

Regarding claim 14, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the predetermined criteria being a function of a level of detail in the block (Thyagarajan: column 7, lines 1-15), as in the claim.

Regarding claim 15, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has the predetermined criteria being a function of a desired bit rate (Thyagarajan: column 13, lines 55-68), as in the claim.

Regarding claim 17, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has separating the image into luminance and two chrominance signals (Kim: column 3, lines 35-40), as in the claim.

Kim discloses an apparatus of decimation of a digital image, the digital image represented by a plurality of pixels (Kim: figure 3B), comprising: means for dividing the digital image into a plurality of blocks (Kim: column 6, lines 32-65), wherein each block may be represented as a plurality of elements within a plurality of columns and rows, decimating further

comprising: filtering each element of each column of the block (Kim: column 12, lines 10-60) and decimating the blocks (Kim: column 12, lines 60-67; column 13, lines 1-10), as in claim 18. However, Kim fails to disclose filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%; and decimating, selectively, certain ones of the blocks based upon predetermined criteria. Thyagarajan discloses the selective decimation of each element of each column of the block of the digital images based on predetermined criteria (Thyagarajan: column 5, lines 35-67; column 6, lines 1-50) in order to preserve features of blocks by preventing the blocking effect (Thyagarajan: column 4, lines 20-30), as in the claim. Accordingly, given the Thyagarajan teaching, it would have been obvious for one of ordinary skill in the art to incorporate Thyagarajan's teaching of selective decimation based on predetermined criteria, into the Kim decimation apparatus in order to prevent blocking artifacts and thus preserve features of blocks. The Kim apparatus, now incorporating Thyagarajan's teaching of selectively decimating blocks based on predetermined criteria, has a majority of the features of claim 18, but fails to disclose having filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%, as in the claim. Donovan discloses that a filter weighting of current columns of blocks where the 25%-50%-25% configuration is known (Donovan: column 9, lines 30-65: mode of ¼, ½, ¼) in order to allow for scaling (decimation) between different scan line formats (Donovan: column 8, lines 15-32). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Donovan teaching of weighing coefficients of ¼, ½, ¼ for a current column of pixels into the Kim-Thyagarajan apparatus in order to allow the composite method to scale

between different scan line formats. The Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation has all of the features of claim 18.

Regarding claim 19, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has filtering the elements of the plurality blocks along the rows (Donovan: column 9, lines 30-65: mode of 1/4/,1/2,1/4), as in the claim.

Regarding claims 20, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, has pixel to frequency and frequency to pixel conversion (Kim: column 3, lines 25-50), as in the claim.

Regarding claim 22, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, the predetermined criteria is a function of chrominance information of the block (Thyagarajan: column 6, lines 50-55), as in the claim.

Regarding claim 23, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, the predetermined criteria being a function of contrast of the block (Thyagarajan: column 7, lines 1-15), as in the claim.

Regarding claim 24, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, the predetermined criteria being a function of a level of detail in the block (Thyagarajan: column 7, lines 1-15), as in the claim.

Regarding claim 25, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, the predetermined criteria being a function of a desired bit rate (Thyagarajan: column 13, lines 55-68), as in the claim.

Regarding claim 27, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, separating the image into luminance and two chrominance signals (Kim: column 3, lines 35-40), as in the claim.

Kim discloses an apparatus of decimation of a digital image, the digital image represented by a plurality of pixels (Kim: figure 3B), comprising: a divider configured to divide the digital image into a plurality of blocks (Kim: column 6, lines 32-65), wherein each block may be represented as a plurality of elements within a plurality of columns and rows, a decimator configured to decimate the blocks further comprising: filtering each element of each column of the block (Kim: column 12, lines 10-60) and decimating the blocks (Kim: column 12, lines 60-67; column 13, lines 1-10), as in claim 28. However, Kim fails to disclose filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%; and decimating, selectively, certain ones of the blocks based upon predetermined criteria. Thyagarajan discloses the selective decimation of each element of each column of the block of the digital images based on predetermined criteria (Thyagarajan: column 5, lines 35-67; column 6, lines 1-50) in order to preserve features of blocks by preventing the blocking effect (Thyagarajan: column 4, lines 20-30), as in the claim. Accordingly, given the Thyagarajan teaching, it would have been obvious for one of ordinary skill in the art to incorporate Thyagarajan's teaching of selective decimation based on

predetermined criteria, into the Kim decimation apparatus in order to prevent blocking artifacts and thus preserve features of blocks. The Kim apparatus, now incorporating Thyagarajan's teaching of selectively decimating blocks based on predetermined criteria, has a majority of the features of claim 28, but fails to disclose having filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%, as in the claim. Donovan discloses that a filter weighting of current columns of blocks where the 25%-50%-25% configuration is known (Donovan: column 9, lines 30-65: mode of ¼, ½, ¼) in order to allow for scaling (decimation) between different scan line formats (Donovan: column 8, lines 15-32). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Donovan teaching of weighing coefficients of ¼, ½, ¼ for a current column of pixels into the Kim-Thyagarajan apparatus in order to allow the composite method to scale between different scan line formats. The Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation has all of the features of claim 28.

Regarding claim 29, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, filtering the elements of the plurality blocks along the columns (Kim: column 12, lines 8-61), as in the claim.

Regarding claims 30, the Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation, pixel to frequency and frequency to pixel conversion (Kim: column 3, lines 25-50), as in the claim.

Kim discloses a method of converting a digital image of a first format to a digital image of a second format (Kim: column 12, lines 63-65), the digital image represented by a plurality of

pixels (Kim: figure 3B), the method comprising: dividing the digital image into a plurality of blocks (Kim: column 6, lines 32-65), wherein each block may be represented by a plurality of columns, each column comprising a plurality of elements (Kim: column 12, lines 9-40); and filtering each column of the block (Kim: column 12, lines 60-67; column 13, lines 1-10), as in claim 31. However, Kim fails to disclose filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%; and decimating, selectively, certain ones of the blocks based upon predetermined criteria for 4:4:4 to 4:2:2 conversion. Thyagarajan discloses the selective decimation of each element of each column of the block of the digital images based on predetermined criteria (Thyagarajan: column 5, lines 35-67; column 6, lines 1-50) in order to preserve features of blocks by preventing the blocking effect (Thyagarajan: column 4, lines 20-30), as in the claim. Accordingly, given the Thyagarajan teaching, it would have been obvious for one of ordinary skill in the art to incorporate Thyagarajan's teaching of selective decimation based on predetermined criteria, into the Kim decimation method in order to prevent blocking artifacts and thus preserve features of blocks. The Kim method, now incorporating Thyagarajan's teaching of selectively decimating blocks based on predetermined criteria, has a majority of the features of claim 8, but fails to disclose having filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%, as in the claim. Donovan discloses that a filter weighting of current columns of blocks where the 25%-50%-25% configuration is known (Donovan: column 9, lines 30-65: mode of ¼, ½, ¼) in order to allow for scaling (decimation) between different scan line formats (Donovan: column 8, lines 15-32). Accordingly, given this teaching it would have been

obvious for one of ordinary skill in the art to incorporate the Donovan teaching of weighing coefficients of ¼, ½, ¼ for a current column of pixels into the Kim-Thyagarajan method, in order to allow the composite method to scale between different scan line formats. The Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation has all of the features of claim 31.

Kim discloses a method of converting a digital image of a first format to a digital image of a second format (Kim: column 12, lines 63-65), the digital image represented by a plurality of pixels (Kim: figure 3B), the method comprising: separating the digital image into Y, Cr, Cb components (Kim: column 3, lines 35-40); dividing the Cb, Cr components into a plurality of blocks (Kim: column 6, lines 32-65) utilizing an adaptive block size discrete cosine transforms (Kim: column 10, lines 10-50), wherein each block may be represented by a plurality of columns, each column comprising a plurality of elements (Kim: column 12, lines 9-40); and filtering each column of the block (Kim: column 12, lines 60-67; column 13, lines 1-10), including weighting the columns (Kim: column 12, lines 20-40), as specified in claim 33. However, Kim fails to disclose filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%; and decimating, selectively, certain ones of the blocks based upon predetermined criteria for 4:4:4 to 4:2:2 conversion. Thyagarajan discloses the selective decimation of each element of each column of the block of the digital images based on predetermined criteria (Thyagarajan: column 5, lines 35-67; column 6, lines 1-50) in order to preserve features of blocks by preventing the blocking effect (Thyagarajan: column 4, lines 20-30), as in the claim. Accordingly, given the Thyagarajan teaching, it would have been obvious for one of ordinary skill in the art to

incorporate Thyagarajan's teaching of selective decimation based on predetermined criteria, into the Kim decimation apparatus in order to prevent blocking artifacts and thus preserve features of blocks. The Kim apparatus, now incorporating Thyagarajan's teaching of selectively decimating blocks based on predetermined criteria, has a majority of the features of claim 18, but fails to disclose having filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%, as in the claim. Donovan discloses that a filter weighting of current columns of blocks where the 25%-50%-25% configuration is known (Donovan: column 9, lines 30-65: mode of ¼, ½, ¼) in order to allow for scaling (decimation) between different scan line formats (Donovan: column 8, lines 15-32). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Donovan teaching of weighing coefficients of ¼, ½, ¼ for a current column of pixels into the Kim-Thyagarajan apparatus in order to allow the composite method to scale between different scan line formats. The Kim apparatus, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation has all of the features of claim 33.

Regarding independent claim 34, Kim discloses a processor for decimating a digital image represented by a plurality of pixels (Kim: column 4, lines 45-50), said processor being configured to: divide the digital image into a plurality of blocks (Kim: column 6, lines 32-65), wherein each block may be represented as a plurality of elements within a plurality of columns and rows, and filter each element of each column of the block (Kim: column 12, lines 10-60); and decimate the blocks (Kim: column 12, lines 60-67; column 13, lines 1-10), as in claim 33. However, Kim fails to disclose filtering each element of each column of the block, where given a

column, weighting the previous column 25%, the current column 50%, and the next column 25%; and decimating, selectively, certain ones of the blocks based upon predetermined criteria. Thyagarajan discloses the selective decimation of each element of each column of the block of the digital images based on predetermined criteria (Thyagarajan: column 5, lines 35-67; column 6, lines 1-50) in order to preserve features of blocks by preventing the blocking effect (Thyagarajan: column 4, lines 20-30), as in the claim. Accordingly, given the Thyagarajan teaching, it would have been obvious for one of ordinary skill in the art to incorporate Thyagarajan's teaching of selective decimation based on predetermined criteria, into the Kim processor in order to prevent blocking artifacts and thus preserve features of blocks. The Kim processor, now incorporating Thyagarajan's teaching of selectively decimating blocks based on predetermined criteria, has a majority of the features of claim 34, but fails to disclose having filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%, as in the claim. Donovan discloses that a filter weighting of current columns of blocks where the 25%-50%-25% configuration is known (Donovan: column 9, lines 30-65: mode of ¼, ½, ¼) in order to allow for scaling (decimation) between different scan line formats (Donovan: column 8, lines 15-32). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Donovan teaching of weighing coefficients of ¼, ½, ¼ for a current column of pixels into the Kim-Thyagarajan processor, in order to allow the composite method to scale between different scan line formats. The Kim processor, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation has all of the features of claim 34.

Regarding independent claim 35, Kim discloses a method of decimation of a digital image, the digital image represented by a plurality of pixels (Kim: figure 3B), the method comprising: dividing the digital image into a plurality of blocks (Kim: column 6, lines 32-65), wherein each block may be represented as a plurality of elements within a plurality of columns and rows, decimating further comprising: filtering each element of each column of the block (Kim: column 12, lines 10-60); and decimating the blocks (Kim: column 12, lines 60-67; column 13, lines 1-10), as in claim 35. However, Kim fails to disclose filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%; and decimating, selectively, certain ones of the blocks based upon predetermined criteria with the method being implemented on a computer readable medium. Thyagarajan discloses the selective decimation of each element of each column of the block of the digital images based on predetermined criteria (Thyagarajan: column 5, lines 35-67; column 6, lines 1-50) in order to preserve features of blocks by preventing the blocking effect (Thyagarajan: column 4, lines 20-30) with the method being implemented on a computer readable medium (Thyagarajan: column 3, lines 45-50: obviously includes a computer readable medium for software in order to achieve computational efficiency with compact hardware), as in the claim. Accordingly, given the Thyagarajan teaching, it would have been obvious for one of ordinary skill in the art to incorporate Thyagarajan's teaching of selective decimation based on predetermined criteria, into the Kim decimation method in order to prevent blocking artifacts and thus preserve features of blocks. The Kim method, now incorporating Thyagarajan's teaching of selectively decimating blocks based on predetermined criteria as implemented on a computer readable medium, has a majority of the features of claim 35, but fails to disclose

having filtering each element of each column of the block, where given a column, weighting the previous column 25%, the current column 50%, and the next column 25%, as in the claim. Donovan discloses that a filter weighting of current columns of blocks where the 25%-50%-25% configuration is known (Donovan: column 9, lines 30-65: mode of ¼, ½, ¼) in order to allow for scaling (decimation) between different scan line formats (Donovan: column 8, lines 15-32). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Donovan teaching of weighing coefficients of ¼, ½, ¼ for a current column of pixels into the Kim-Thyagarajan computer implemented method, in order to allow the composite method to scale between different scan line formats. The Kim method, now incorporating the Donovan teaching if weighting coefficients of ¼ , ½ , ¼ and Thyagarajan's selective decimation as implemented on computer readable medium, has all of the features of claim 35.

Conclusion

7. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

	Andy S. Rao Primary Examiner Art Unit 2621

asr
November 22, 2006

ANDY RAO
PRIMARY EXAMINER